Trend Study 14R-1-01

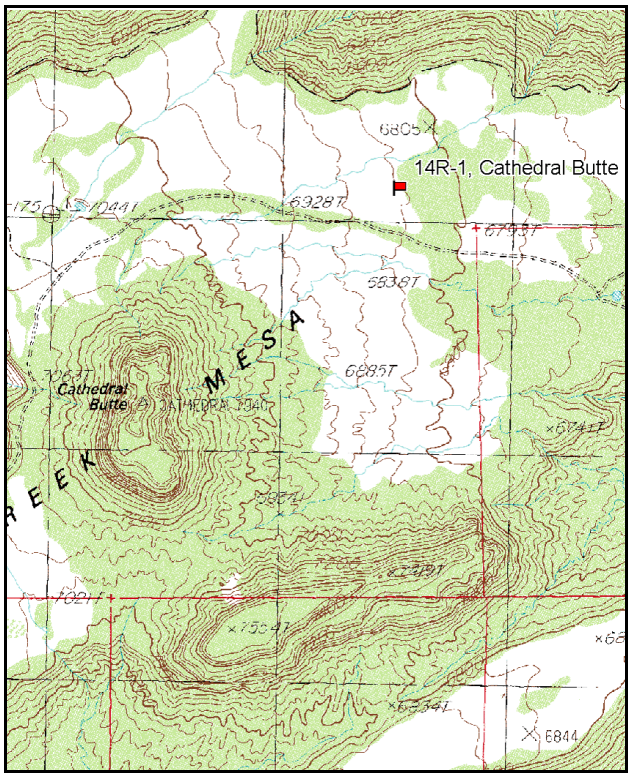
Study site name: Cathedral Butte . Vegetation type: Chained, Seeded PJ .

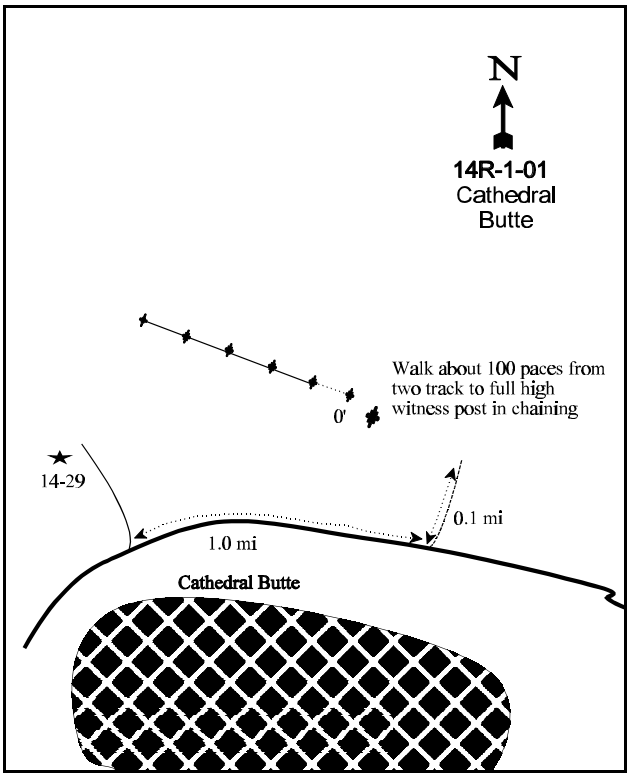
Compass bearing: frequency baseline 290 degrees magnetic.

Frequency belt placement: line 1(11ft), line 2(34 ft), line 3(59 ft), line 4(71 ft), line 5 (95 ft).

LOCATION DESCRIPTION

Travel to the north side of Cathedral Butte. As the road winds around the north side of the butte there is a junction to a small side road on the northwest side of the butte. This is the turnoff to the Salt Creek Mesa trend study (14-29). From this junction travel east on the main road 1.0 mile to another faint two track road heading north. Turn here and go 0.1 mile to a small opening in the trees. From here walk approximately 100 paces to the west into the chaining. There is a full high witness post a few feet from the 0-foot baseline stake. The baseline runs 290 degrees magnetic.





Map Name: Cathedral Butte Diagrammatic Sketch

Township 32S , Range 20E , Section Unsurveyed UTM 4202110 N 615488 E

DISCUSSION

Trend Study No. 14R-1

The Cathedral Butte study was established in 2001 to gather pretreatment data for a prescribed burn project on the north side of Elk Ridge. This area is important winter range for big game and important for livestock use. This area has received increased attention in recent years as it lies in close proximity to Beef Basin. Most of the proposed prescribe burn area consists of old pinyon-juniper chainings, including the area where the study was placed. The site lies on a gentle, northeast aspect at an elevation of 6,850 feet. A pellet group transect read parallel to the vegetation baseline in 2001 estimated 3 deer days use/acre (8 ddu/ha), 23 elk days use/acre (56 edu/ha), and 33 cow days use/acre (82 cdu/ha).

Soils are sandy clay loam in texture with a soil reaction that is slightly alkaline (7.7 pH). Effective rooting depth was estimated at just over 14 inches. A stoniness profile index shows the majority of rock to be in the upper 12 inches of the profile. Phosphorus is low at 7.3 ppm, where values less than 10 ppm can be limiting to normal plant growth and development. Although vegetation and litter cover are moderately high, percent bare ground is also fairly high. An erosion condition class assessment determined soils as slightly eroding in 2001. Most evidence of erosion is due to excessive pedestaling around some of the vegetation.

Several important browse species are present in the area, however most occur in very low numbers on the site itself. The entire browse component contributes only 4% average cover in 2001. Important winter forage species include fourwing saltbush, mountain big sagebrush, green ephedra, and bitterbrush. Fourwing saltbush has an estimated density of 300 plants/acre. Twenty-seven percent of the population consists of young plants with another 33% classified as decadent. Use on fourwing saltbush is moderate to heavy, but vigor is normal on all but 7% of the population. Mountain big sagebrush and bitterbrush have densities estimated at only 20 plants/acre. Use is moderate on mountain big sagebrush and heavy on bitterbrush. Ephedra density is estimated at 40 plants/acre with use being moderate to heavy. In 2001, annual leader growth was estimated at 4.8 inches on fourwing saltbush, 4.5 inches on bitterbrush, and 3.3 inches on mountain big sagebrush. A prescribed fire would be detrimental to the usefulness of this site to wildlife, especially big game. Fire will likely eliminate much or all of the palatable browse on the site, which is already at very low densities.

Crested wheatgrass is by far the dominant species on this site. Crested wheatgrass contributed over 39% average cover and was sampled in 97% of the quadrats in the 2001. The only other grass sampled in 2001 was blue grama. Forbs are sparse with only 5 species being sampled. Rock goldenrod and a milkvetch are the most abundant forbs.

APPARENT TREND ASSESSMENT

Soils appear to be stable with only slight erosion occurring. Vegetation and litter are moderately high with most of the bare ground occurring in the interspaces between the individual crested wheatgrass plants. Browse is already limited on the site and would be further reduced following the proposed burn. A prescribed burn will likely eliminate most or all of the palatable forage on the site, which would decrease the usefulness of this site to big game as a wintering area. Crested wheatgrass dominates the site and will likely continue to do so in the future.

HERBACEOUS TRENDS --
Herd unit 14R, Study no: 1

Type	Species	Nested Frequency '01	Quadrat Frequency '01	Average Cover % '01
G	Agropyron cristatum	388	97	39.51
G	Bouteloua gracilis	10	2	.06
Total for Annual Grasses		0	0	0
Total for Perennial Grasses		398	99	39.57
Total for Grasses		398	99	39.57
F	Astragalus spp.	4	3	.45
F	Machaeranthera canescens	3	1	.15
F	Medicago sativa	2	2	.07
F	Petradoria pumila	3	1	.41
F	Phlox austromontana	4	2	.06
Total for Annual Forbs		0	0	0
Total for Perennial Forbs		16	9	1.14
Total for Forbs		16	9	1.14

BROWSE TRENDS --
Herd unit 14R, Study no: 1

Type	Species	Strip Frequency '01	Average Cover % '01
B	Artemisia tridentata vaseyana	1	-
B	Atriplex canescens	15	1.56
B	Chrysothamnus nauseosus consimilis	2	-
B	Ephedra viridis	2	.01
B	Gutierrezia sarothrae	25	1.14
B	Opuntia spp.	1	.01
B	Pinus edulis	1	1.25
B	Purshia tridentata	1	-
Total for Browse		48	3.99

CANOPY COVER --
Herd unit 14R , Study no: 1

Point-Quarter Tree Data

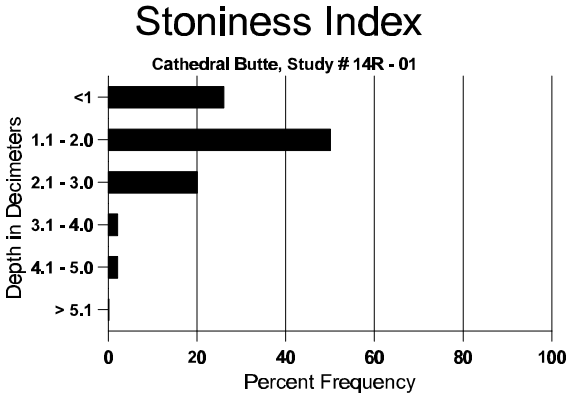
Species	Percent Cover '01	Trees per Acre '01	Average diameter (in) '01
Juniperus osteosperma	-	23	3.8
Pinus edulis	2	19	4.1

BASIC COVER --
Herd unit 14R, Study no: 1

Cover Type	Nested Frequency '01	Average Cover % '01
Vegetation	399	46.50
Pavement	20	.05
Litter	413	34.80
Cryptogams	63	.69
Bare Ground	372	36.80

SOIL ANALYSIS DATA --
Herd Unit 14R, Study no: 01, Cathedral Butte

Effective rooting depth (in)	Temp °F (depth)	PH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
14.2	61.2 (14.8)	7.7	57.9	18.6	23.5	2.3	7.3	89.6	0.6



PELLET GROUP FREQUENCY --
Herd unit 14R, Study no: 1

Type	Quadrat Frequency '01	Pellet Transect	
		Pellet Groups per Acre '01	Days Use per Acre (ha) '01
Rabbit	30	157	N/A
Elk	27	296	23 (56)
Deer	12	43	3 (8)
Cattle	19	400	33 (82)

BROWSE CHARACTERISTICS --
Herd unit 14R, Study no: 1

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia tridentata vaseyana																		
M	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0	25	42	0
D	01	-	1	-	-	-	-	-	-	-	1	-	-	-	20			1
% Plants Showing '01		Moderate Use 100%		Heavy Use 00%		Poor Vigor 00%									%Change			
Total Plants/Acre (excluding Dead & Seedlings) '01															20	Dec:		100%
Atriplex canescens																		
Y	01	2	2	-	-	-	-	-	-	-	4	-	-	-	80			4
M	01	4	1	1	-	-	-	-	-	-	6	-	-	-	120	27	29	6
D	01	2	1	1	1	-	-	-	-	-	4	-	-	1	100			5
X	01	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
% Plants Showing '01		Moderate Use 27%		Heavy Use 13%		Poor Vigor 07%									%Change			
Total Plants/Acre (excluding Dead & Seedlings) '01															300	Dec:		33%
Chrysothamnus depressus																		
M	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0	4	9	0
% Plants Showing '01		Moderate Use 00%		Heavy Use 00%		Poor Vigor 00%									%Change			
Total Plants/Acre (excluding Dead & Seedlings) '01															0	Dec:		-
Chrysothamnus nauseosus consimilis																		
M	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20	45	46	1
D	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
% Plants Showing '01		Moderate Use 00%		Heavy Use 00%		Poor Vigor 00%									%Change			
Total Plants/Acre (excluding Dead & Seedlings) '01															40	Dec:		50%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Ephedra viridis																		
Y	01	-	1	-	-	-	-	-	-	-	1	-	-	-	20			1
M	01	-	-	-	-	-	1	-	-	-	1	-	-	-	20	18	10	1
% Plants Showing '01				Moderate Use 50%			Heavy Use 50%				Poor Vigor 00%					%Change		
Total Plants/Acre (excluding Dead & Seedlings)													'01		40	Dec:		-
Gutierrezia sarothrae																		
Y	01	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
M	01	75	-	-	-	-	-	-	-	-	75	-	-	-	1500	8	13	75
% Plants Showing '01				Moderate Use 00%			Heavy Use 00%				Poor Vigor 00%					%Change		
Total Plants/Acre (excluding Dead & Seedlings)													'01		1560	Dec:		-
Mahonia fremontii																		
M	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0	21	33	0
% Plants Showing '01				Moderate Use 00%			Heavy Use 00%				Poor Vigor 00%					%Change		
Total Plants/Acre (excluding Dead & Seedlings)													'01		0	Dec:		-
Opuntia spp.																		
M	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20	1	4	1
X	01	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
% Plants Showing '01				Moderate Use 00%			Heavy Use 00%				Poor Vigor 00%					%Change		
Total Plants/Acre (excluding Dead & Seedlings)													'01		20	Dec:		-
Pinus edulis																		
M	01	-	-	-	1	-	-	-	-	-	1	-	-	-	20	-	-	1
% Plants Showing '01				Moderate Use 00%			Heavy Use 00%				Poor Vigor 00%					%Change		
Total Plants/Acre (excluding Dead & Seedlings)													'01		20	Dec:		-
Purshia tridentata																		
D	01	-	-	-	-	-	1	-	-	-	1	-	-	-	20			1
% Plants Showing '01				Moderate Use 00%			Heavy Use 100%				Poor Vigor 00%					%Change		
Total Plants/Acre (excluding Dead & Seedlings)													'01		20	Dec:		100%